Global Business & Development Law Journal

Volume 19
Issue 1 *Symposium Transboundary Freshwater Ecosystem Restoration: The Role of Law, Process and Lawyers*

Article 10

1-1-2006

Environmental and Other Implications of Operating the Yuma Desalting Plant

Kara Gillon
Defenders of Wildlife

Environmental and Other Implications of Operating the Yuma Desalting Plant

*Kara Gillon**

I. INTRODUCTION

The Colorado River Delta once covered nearly two million acres of riparian wetland habitat,[1] which supported over 400 species of plants and animals.[2] A sizable freshwater flow reached the mouth at the Upper Gulf of California, replenishing the delta with silt and delivering nutrients to fish and other marine life.[3] Naturalist Aldo Leopold described the delta "as a land of 'milk and honey' inhabited by snowstorm-like flights of egrets, jaguars, and 'a welter of fish and fowl'. . . 'green lagoons,' 'lovely groves,' and 'awesome jungles.'"[4] In fact, there was enough water to create tidal bores that would sink large ships reaching the gulf.[5] Dam building changed all of that, and by the 1960s, the filling of Lake Mead—in anticipation of the completion of Glen Canyon Dam—turned the river into a trickle that rarely reached the gulf.[6]

The delta dried up. Marine life disappeared and delta wetlands shrunk to one-fifth their former size. Less water to the delta meant saltier water for Mexico as the United States delivered only the amount required by the 1944 Treaty ("Treaty").[7] After lengthy negotiations as to the quality of water the United States had to deliver, the United States agreed to bypass the saltiest waters to a dry

---

* Kara Gillon is a Staff Attorney with Defenders of Wildlife, an advocacy group with over 500,000 members and supporters dedicated to protecting plants and animals in their natural ecosystems. Ms. Gillon specializes in water and endangered species issues in the Lower Colorado River, Middle Rio Grande and other western river basins. She also works on public lands and other issues in the Sonoran Desert and U.S.-Mexico borderlands. Ms. Gillon received her BA from Georgetown University and her JD from Vermont Law School.

1. Frank Clifford, *Plotting a Revival in a Delta Gone to Dust*, L.A. TIMES, March 24, 1997, at A1.

2. *See generally* GODFREY SYKES, THE COLORADO DELTA (W.L.G. Joerg ed., Kennikat Press 1970) (1937); *see also* ALDO LEOPOLD, A SAND COUNTY ALMANAC (Oxford Univ. Press 1966) (1949).

3. DANIEL F. LUECKE ET AL., A DELTA ONCE MORE: RESTORING RIPARIAN AND WETLAND HABITAT IN THE COLORADO RIVER DELTA 2 (1999), *available at* http://www.environmentaldefense.org/documents/425_Delta.pdf.

4. Phillip L. Fradkin, *The River Revisited: The Colorado is the Most Used, Politicized, and Tightly Controlled River in the West. . .*, L.A. TIMES, Oct. 29, 1995, at Magazine 16.

5. Edward P. Glenn et al., *Introduction*, 49 J. OF ARID ENV'TS 1, 1-2 (2001).

6. Edward P. Glenn et al., *Effects of Water Management on the Wetlands of the Colorado River Delta, Mexico*, 10 CONSERVATION BIOLOGY 1175, 1177 (1996) [hereinafter *Effects of Water Management*]. In the past century, river flows into the delta have been reduced nearly 75%; from 1906 to 1921 flows averaged 18.1 million acre-feet. Western Water Policy Review Commission: Water in the West: Challenge for the Next Century 2-9 (1998), Colorado River Basin Study 6 (1997). From 1984 to 1999 they averaged 4.2 million acre-feet. Edward P. Glenn, Carlos Valdes-Casillas, IMPORTANCE OF UNITED STATES' WATER FLOWS TO THE COLORADO RIVER DELTA AND THE NORTHERN GULF OF CALIFORNIA, MEXICO 14 (unpub. October 13, 1998) [hereinafter IMPORTANCE OF UNITED STATES' WATER FLOWS].

7. Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., February 3, 1944, 59 Stat. 1219 (allotting 1.5 million acre-feet to Mexico from waters of the Colorado River) [hereinafter Water Treaty of 1944].

mudflat that had once been part of the vast delta wetlands. The Bureau of Reclamation ("Reclamation") would also build a desalination plant designed to treat those waters for delivery to Mexico. Wet years and full reservoirs obviated the need for water treatment, and forty years of bypass flows to the Ciénega de Santa Clara ("Ciénega") have revitalized this piece of the delta.[8]

Now, the Ciénega is a desert oasis:

> The Ciénega de Santa Clara is a vast island of water in the huge sea of Sonoran sand. These 'hundred waters' cover about fifty-thousand acres. The upper twelve thousand acres or so are marshy and covered in thick vegetation, a dense mat of cattails interspersed with bulrushes. The water is shallow, never deeper than about a meter, a maze of green lagoons in the midst of a brown desert.
>
> An oasis in the desert, the Ciénega is a magnet for birds and wildlife, a crucial refuge for them.[9]

Wetland losses of the magnitude seen along the Colorado River and the delta underscore the importance of those that remain. Even in their smaller state, the delta wetlands are a major stop-over on the Pacific Flyway, and provide important resting and feeding grounds for a variety of shorebirds and migratory waterfowl.[10] These wetlands may have the highest populations of migratory and nonmigratory waterfowl and shorebirds in the Colorado area.[11] As water users exhaust existing supplies, many are looking for "new water" and placing these wetlands at risk.

The Yuma Desalting Plant ("YDP") is precisely this type of threat. Portrayed as an effort to eliminate waste, operation of the plant would deprive the Ciénega of water, with drastic impact to fish and wildlife that live, breed, and feed there. Reclamation is exploring other ways to deliver clean water to Mexico, without operating the YDP. That is a wise move, as its operation would result in significant environmental and international complications.

Part II of this article lays out the negotiations between the United States and Mexico that led to the bypass of flows to the Ciénega and construction of the YDP. Part III describes the pre- and post-bypass Ciénega and the threats posed by the YDP operation to the wetland ecosystem. Part IV concerns present-day discussions over the YDP and whether there are other means available to satisfy the U.S. agreement with Mexico. Part V examines domestic environmental laws

---

8. *See generally* Edward Glenn, et al., *Ciénega de Santa Clara: Endangered Wetland in the Colorado River Delta*, 32 NAT. RESOURCES J. 817 (1992) [hereinafter *Endangered Wetland*].

9. CHARLES BERGMAN, RED DELTA: FIGHTING FOR LIFE AT THE END OF THE COLORADO RIVER 39 (Marlene Blessing et al., ed., Fulcrum Publishing 2002).

10. CARLOS VALDES-CASILLAS, et al., WETLAND MANAGEMENT AND RESTORATION IN THE COLORADO RIVER DELTA: THE FIRST STEPS 4 (North American Wetlands Conservation Council 1998).

11. LUECKE, *supra* note 3, at 6.

and argues that compliance with each of these laws will be difficult to achieve, if Reclamation chooses to turn on the YDP. Lastly, Part VI will look at the international implications of destroying the Ciénega, in the context of U.S. relations with both of its neighbors.

II. CRISIS ON THE COLORADO RIVER: MEXICO PROTESTS U.S. RIVER POLICY

Two events converged in the 1960s that led Mexico to formally protest the quality of water received at Morelos Dam. First, Wellton-Mohawk Irrigation and Drainage District ("WMIDD") was pumping highly saline drainage waters into the Colorado River. At the same time, waters that had previously diluted those flows were being captured in Lake Mead.[12] Drainage water from WMIDD increased the salinity of waters arriving at the Northerly International Boundary from an annual average of 800 to 1500 parts per million (ppm).[13]

In 1961, Mexico formally protested the quality of its receiving waters. The United States and Mexico then began negotiations in 1963.[14] The first agreement came with Minute 218, which resulted in the bypass of 40,000 acre-feet of water per year, construction of the twelve-mile Main Outlet Drain Extension ("MODE") to bypass those waters around Morelos Dam (or mix them with upstream waters, at Mexico's discretion), and additional wells for selective groundwater pumping.[15]

Desirous of a long-term agreement, Mexican President Echeverria visited Washington, DC, demanding parity with U.S. water users. He wanted the water diverted at Morelos Dam to be the same quality as the water diverted at Imperial Dam, the last U.S. point of diversion.[16] President Nixon issued a joint communiqué in which he promised to immediately improve the quality of water

---

12. *See* LOWER COLORADO REGION, BUREAU OF RECLAMATION, FINAL ENVIRONMENTAL STATEMENT: COLORADO RIVER BASIN SALINITY CONTROL PROJECT TITLE I (June 18, 1975) [hereinafter FINAL ENVIRONMENTAL STATEMENT] (giving the history behind the Yuma Desalting Plant). The objectives of the project are to reduce the salinity of water deliveries, more efficiently use water resources, and to manage groundwater withdrawal at the border. The total cost of the project was projected at $155 million. *Id.* at 12, 14. *See also* Myron B. Holburt, *International Problems of the Colorado River*, 15 NAT. RESOURCES J. 12 (1975).

13. Salinity is the concentration of dissolved mineral salts and solids, also referred to as TDS (total dissolved solids) and can include calcium, sodium, chloride and other solids. COLORADO RIVER SALINITY CONTROL FORUM, 2005 REVIEW: WATER QUALITY STANDARDS FOR SALINITY COLORADO RIVER SYSTEM 2-5 (Oct. 2005), *available at* http://www.coloradoriversalinity.org/2005%20Review%20October.pdf.

14. In a diplomatic note, Mexico stated "the delivery of water that is harmful for the purposes stated in the Treaty constitutes a violation of the Treaty" and that "any contamination of international water by one of the riparian countries that cause damage or loss to the other riparian party is in itself an act clearly and specifically condemned by International Law . . . ." FINAL ENVIRONMENTAL STATEMENT, *supra* note 12, at 2.

15. International Boundary and Water Commission, Minute 218, Recommendations on the Colorado River Salinity Problem (March 22, 1964) *available at* http://www.ibwc.state.gov/Files/Minutes/Min218.pdf.

16. Anne DeMarsay, *The Brownell Task Force and The Mexican Salinity Problem: A Narrative Chronology of Events* (Colorado River Basin Salinity Control Forum, Bountiful, UT), Sept. 1991, at 4 (hereinafter *The Brownell Task Force*).

delivered to Mexico, appoint a special representative to achieve a solution, and submit a proposal to Mexico. This spurred the creation of a task force assigned to find a "definitive, equitable and just" solution.[17] Minute 241—the immediate measure—called for the bypass of 118,000 acre-feet of drainage water without charge against the Treaty.[18] The United States would replace the bypassed water with better quality water from upstream storage.

Henry Kissinger, then head of the National Security Council and not represented on the task force, ordered that any solution would have to remove the effects of Wellton-Mohawk flows on salinity in the river.[19] This greatly reduced the range of options available to the United States to improve water quality. The Office of Saline Waters pushed desalting technology and the idea gained traction with Kissinger, but the Office of Management and Budget was concerned about the cost of such a plant, its unproven technology at a large scale, and its environmental effects. The Environmental Protection Agency ("EPA"), Council on Environmental Quality, and the Army Corps of Engineers shared these environmental concerns.

With a desalting plant in mind, the United States proposed an acceptable settlement that eventually became Minute 242. The salinity of deliveries upstream of Morelos Dam (at the Northerly International Boundary) would be between 115 and 130 ppm over the annual average salinity measured at Imperial Dam, by the United States in Arizona and by Mexico in Sonora. Wellton-Mohawk waters would continue to be discharged there.[20] The bypassed water would not be charged against Mexico's Treaty entitlement.[21]

In order to implement Minute 242, Congress passed the Colorado River Basin Salinity Control Act, authorizing the Secretary of the Interior to construct, operate and maintain the YDP, and to perform other duties.[22] In total, Reclamation would treat the drain water from the WMIDD, construct an extension of the MODE "to carry the reject stream from the desalting plant and other drainage waters to the Santa Clara Slough" (now the Ciénega de Santa Clara), and increase irrigation efficiency within Wellton-Mohawk to reduce the

17. Visit of President Echeverria of Mexico, 8 Weekly Comp. Pres. Doc. 1057, 1058-1059 (June 19, 1972).

18. International Boundary and Water Commission, Minute 241, Recommendations to Immediately Improve the Quality of Colorado River Waters Going to Mexico (July 14, 1972), *available at* http://www.ibwc.state.gov/Files/Minutes/Min241.pdf.

19. *The Brownell Task Force*, *supra* note 16, at 6.

20. International Boundary and Water Commission, Minute 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River (August 30, 1973), *available at* http://www.ibwc.state.gov/Files/Minutes/Min242.pdf.

21. Interestingly, the bypass flow also is not charged against Arizona's consumptive use, even though it is not return flow as defined by the Supreme Court. Arizona v. California, 376 U.S. 340, 340 (1964) (defining consumptive use as "diversions from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation").

22. Colorado River Basin Salinity Control Act, 43 U.S.C. §§ 1571-1599 (2000).

amount of drainage flows (which served both to reduce the needed capacity of the YDP and to reduce the size of the replacement flows).[23]

Reclamation constructed the YDP four miles west of Yuma, Arizona, and two miles north of Morelos Dam. It is a reverse osmosis membrane desalting plant designed to treat 138,560 acre-feet of 3100 ppm Wellton-Mohawk drainage water, producing 110,800 acre-feet of water at 502 ppm and a reject stream of 43,680 acre-feet at 8,416 ppm. The clean stream would be combined with 20,160 acre-feet of raw feed to yield 131,040 acre-feet of water at 902 ppm.[24] Whatever was left would be sent across the border.

Reclamation finished construction of the YDP in spring 1992, and then operated it briefly for about eight months.[25] It shut down when massive flooding along the Gila River damaged canals that carry Wellton-Mohawk drainage water to the facility. It operated at one-third capacity and "processed a grand total of 23,000 acre-feet of water."[26] Except for this brief period, Wellton-Mohawk drainage has flowed into a 100,000 acre bowl in the delta for almost forty years.

III. SANTA CLARA SLOUGH (ALSO KNOWN AS THE CIÉNEGA DE SANTA CLARA) THEN AND NOW

As originally designed, the bypass drain would extend fifty-three miles from the MODE to the Santa Clara Slough ("Slough"), north of the Gulf of California.[27] Reclamation described the Slough as a low lying area of approximately 103,000 acres, extending approximately twenty-seven miles upstream of the gulf.[28] Plant life comprised only 450 acres and was largely confined to a north-south ribbon along an escarpment on the east side of the Slough.

Reclamation predicted that the bypass would drain into the upper portion of the Ciénega, a large marsh with about seventy-five acres of open water and

---

23. *See id.* § 1571(b)(3).

24. FINAL ENVIRONMENTAL STATEMENT, *supra* note 12, at Plate 3. *See* Yuma Desalting Plant Operations, http://www.usbr.gov/lc/yuma/facilities/ydp/yao_ydp_operations.html (last visited Feb. 13, 2006) (giving more information on how the YDP operates). The exact figures will depend on inflows and capacity, but recent Reclamation figures indicate that the amount of Wellton-Mohawk drainage water has since decreased, changing these figures. *See* CRB – Salinity Control Project: Yuma Desalting Complex Unit, http://www.usbr.gov/dataweb/html/yumadesalt.html (last visited Feb. 13, 2006).

25. *See* Bureau of Reclamation, Budget Justifications and Performance Information for Fiscal Year 2005 (Bureau of Reclamation Technical Service Center CD-ROM, 2004) (on file with author) (stating that it was constructed for $256 million, the mothballed plant still costs $6 to $9 million per year in "ready reserve").

26. Martin Van Der Werf, *Draining the budget to desalt the Colorado*, HIGH COUNTRY NEWS, Feb. 21, 1994, *available at* http://www.hcn.org/servlets/hcn.Article?article_id=97. This water costs as much as $25.8 million, the annual operating cost of the plant at that time. *Id.*

27. Although Reclamation and the International Boundary and Water Commission use "Santa Clara Slough," the discharge does not actually reach the slough, so the term "Ciénega de Santa Clara" is used because it appears on Mexican maps of the area. *See Endangered Wetland*, *supra* note 8, at 819.

28. Unless otherwise noted, the background information was summarized with the assistance of the following document: FINAL ENVIRONMENTAL STATEMENT, supra note 12, at 71.

vegetation. At that time, it was fed by an irrigation drain feeding about fifteen to twenty cubic feet per second with an average 5200 ppm. This was the sole source of water since the marsh was completely isolated from the gulf. At the terminus of the marsh, and to the west and south, were barren salt flats. Fish such as carp, red shiner, and mosquito fish existed in the open water, but the desert pupfish was by far the most common species. Brown pelicans, egrets, and herons also frequented the area, and Virginia rail and Yuma clapper rail were occasionally observed. In the lower section of the Slough, surface water seeped from the escarpment and is limited to narrow channels with bulrush and cattails. There were no large fish, as the water varied from two to four inches in depth (as opposed to the two inches to a few feet of water in the upper reach).

Historically, these areas, including the salt flats, were affected by gulf waters and the Colorado River. Reclamation concluded that neither of these factors influenced the Slough. Despite the loss of freshwater flows from the Colorado River, Reclamation opined that the 75 acres of open-water vegetation and the 374 acres of marsh habitat within the Slough were "unique ecological components of this landscape."[29]

What was once an active arm of the Colorado River in the delta and then retreated to a small marsh has evolved into a collection of natural and anthropogenic wetlands known as the Ciénega.[30] Now more than ever, the Ciénega plays a key role in the ecological health not only of the Colorado River Delta, but also the North American continent: it is home to thousands of migratory and resident birds; it is a critical link in the Pacific Flyway; and it harbors many species that both the United States and Mexico consider to be rare or endangered.[31] In recognition of the Ciénega's central importance, Mexico protected the wetland by including the area within the borders of the Biosphere Reserve of the Upper Gulf of California and Colorado River Delta in 1993 (El Alto Golfo de California y Delta del Río Colorado).[32] The Biosphere Reserve contains a core zone and a buffer zone totaling 1,649,312 hectares (approximately 4.1 million acres).[33] The core zone, designed to preserve and restore the area to its natural condition, comprises 434,285 hectares and includes the Ciénega.[34]

The Ciénega is also included in the Ramsar Convention on Wetlands of International Importance, and is internationally recognized as a wetland of great

---

29. *Id.* at 101.

30. Edward P. Glenn, et al., *Status of Wetlands Supported by Agricultural Drainage Water in the Colorado River Delta*, Mexico, 34 HORT SCIENCE 39, 41 (February 1999) [hereinafter *Status of Wetlands*].

31. OSVEL HINOJOSA-HUERTA ET AL., BIRD CONSERVATION PLAN FOR THE COLORADO RIVER DELTA (Feb. 2004), *available at* http://www.sonoranjv.org/BCPColoradoDelta.pdf.

32. *See* The MAB Programme: UNESCOO-MAB Biosphere Reserves Directory, http://www2.unesco.org/mab/br/brdir/directory/biores.asp?code=MEX+10&mode=all (last visited Feb. 13, 2006).

33. *Id.*

34. *Id.*

ecological significance.[35] More than ninety recorded species of birds in the Ciénega are protected under migratory bird treaties.[36] Furthermore, the Ciénega still harbors imperiled species, such as the desert pupfish, brown pelican, Yuma clapper rail, Virginia rail, and California black rail.[37]

Both the United States and Mexico consider the desert pupfish *(Cyprinodon macularius)* to be an endangered species.[38] Pupfish generally inhabit desert springs, small streams, creeks, marshes, and the edges of larger bodies of water. These tiny fish, which only grow to a few inches, are well adapted to hot, salty, shallow water.[39] There are many reasons this tiny fish is endangered, including habitat loss and modification, water diversion, and competition with non-native populations.[40]

There are currently twelve natural populations in the United States and Mexico, and twenty transplanted populations of this subspecies.[41] In the United States, a natural population of this subspecies exists only in California's Salton Sink, which includes the Salton Sea.[42] In Mexico, however, this subspecies exists in El Doctor, the Ciénega (first discovered during the initial environmental assessments of the YDP), Laguna Salada, and Cerro Prieto wetlands.[43]

The brown pelican *(Pelecanus occidentalis)*, a large water bird with white-colored areas around the head and neck, is also listed as an endangered species.[44]

---

35. *See* A Directory of Wetlands of International Importance, http://www.wetlands.org/RDB/Ramsar_Dir/Mexico/MX005D02.htm (last visited Nov. 16, 2005) (on file with Pacific McGeorge Business and Development Law Journal).

36. 50 C.F.R. § 10.13 (2005). *See also* Osvel Hinojosa-Huerta, Checklist of the Waterbirds of the Ciénega de Santa Clara (2003), *available at* http://www.usbr.gov/lc/region/programs/bypass/comments/enva.pdf (listing bird species recorded at the Ciénega).

37. HINOJOSA-HUERTA ET AL., *supra note 31*, at 6 (detailing use by waterfowl and neotropical migratory birds). In addition, Mexican law protects ten species of breeding birds and fourteen others that stopover or winter in the Delta. *Id.* at 5.

38. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Critical Habitat for the Desert Pupfish, 51 Fed. Reg. 10,842 (March 31, 1986); Norma Oficial Mexicana, Protección ambiental—especies nativas de México de flora y fauna silvestres—Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo, D.F., 6 de marzo de 2002 (NOM-059-SEMARNAT-2001) [hereinafter Norma Oficial Mexicana], *available at* http://www.ine.gob.mx/ueajei/norma59a.html (last visited September 6, 2006).

39. BUREAU OF RECLAMATION, BIOLOGICAL ASSESSMENT ON OPERATIONS, MAINTENANCE, AND SENSITIVE SPECIES OF THE LOWER COLORADO RIVER 161 (1996), *available at* http://www.usbr.gov/lc/region/g2000/batoc.html (last visited Feb. 13, 2006) [hereinafter RECLAMATION BIOLOGICAL ASSESSMENT].

40. *See* Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Critical Habitat for the Desert Pupfish, 51 Fed. Reg. at 10,843; *see also* PAUL C. MARSH & DONALD W. SADA, DESERT PUPFISH RECOVERY PLAN 11 (U.S. Fish & Wildlife Service, September 1993).

41. BUREAU OF RECLAMATION, SUPPLEMENTAL BIOLOGICAL ASSESSMENT ON TRANSBOUNDARY EFFECTS IN MEXICO FOR PROPOSED INTERIM SURPLUS CRITERIA 26 (Jan. 9, 2001).

42. MARSH, *supra* note 40, at 1. The Salton Sea, which is in Southern California, was created accidentally by agricultural drainage. This lake is also vital for endangered species and many migratory birds. *See generally* WILLIAM DEBUYS, SALT DREAMS: LAND AND WATER IN LOW-DOWN CALIFORNIA (University of New Mexico Press 1999).

43. MARSH, *supra* note 40, at 5.

44. Brown Pelican description, http://ecos.fws.gov/docs/life_histories/B02L.html (last visited September 6, 2006)

The larger of these birds can have a wingspan that spreads over seven feet. Habitat of the brown pelican is mainly coastal; these birds are rarely seen inland or far out at sea. They mostly feed in shallow estuarine waters, and though less often, up to forty miles from shore. The brown pelican is a repeat but uncommon visitor to the Ciénega, more often appearing in other delta wetlands.

Both the United States and Mexico have listed the Yuma clapper rail (*Rallus longirostris yumanenis*) on their endangered species lists.[45] These chicken-shaped birds with long, down-curved beaks are heard more often than seen because of their preference for dense wetland vegetation.[46] Over the last hundred years, the rail has moved north as dams along the Colorado River have created more marsh areas in the United States.[47] Yet the Yuma clapper rail's habitat is very insecure, with habitat loss due to fluctuations in river flow and dredging and flood control operations, limiting their ability to establish permanently along the river channel and backwaters.[48] Closely related to river flow, other limiting factors are the decreased availability of crayfish (95% of the rail's diet), and the increased selenium levels. An increase in selenium could result in problems with metabolism, reproduction, and cause hatching defects.[49]

A substantial rail population also exists in the delta. While early data estimated 450 to 970 birds in the delta, including the Ciénega, more recent surveys have estimated 6629 rails in the Ciénega alone in 2000.[50] This is almost six times the most recent U.S. population estimate,[51] and dwarfs population estimates along the Lower Colorado River main stem in the United States.[52] Cooperation between Mexico and the United States is essential for the recovery of this species, since Yuma clapper rail habitat is found in both countries.[53]

Other rail species, such as the California black rail and the Virginia rail, are found in the Ciénega.[54] Both are marsh birds and have been observed using freshwater and brackish water wetlands. Like many wetland species, they are

---

45. 50 C.F.R. § 17.11 (listing the Yuma clapper rail as endangered in the U.S.); Norma Oficial Mexicana, *supra* note 38 (listing the Yuma clapper rail as endangered in Mexico).

46. RECLAMATION BIOLOGICAL ASSESSMENT, *supra* note 39, at 161.

47. *Id.* at 162.

48. U.S. Fish & Wildlife Service, BIOLOGICAL AND CONFERENCE OPINION ON LOWER COLORADO RIVER OPERATIONS AND MAINTENANCE 65 (1997) [hereinafter BIOLOGICAL AND CONFERENCE OPINION].

49. RECLAMATION BIOLOGICAL ASSESSMENT, *supra* note 39, at 161.

50. O. Hinojosa-Huerta et al., *Distribution and Abundance of the Yuma Clapper Rail (Rallus longirostris yumanensis) in the Colorado River Delta, Mexico*, 49 J. ARID ENV'TS 171 (2001).

51. *See* BIOLOGICAL AND CONFERENCE OPINION, *supra* note 48, at 65 (stating that in 1994, the Yuma clapper rail population in the United States was estimated at up to 1145 individuals).

52. BUREAU OF RECLAMATION, LOWER COLORADO RIVER MULTI-SPECIES CONSERVATION PROGRAM FINAL App. I-3 (2004) (estimating from 191 to 325 individuals yearly since 2000).

53. The Yuma Clapper Rail Recovery Plan calls for obtaining agreements with Mexico for management and preservation of the species in order to achieve recovery. The FWS will assess both United States and Mexican populations in any delisting decision. STANLEY H. ANDERSON, YUMA CLAPPER RAIL RECOVERY PLAN 12 (1983), *available at* http://arizonaes.fws.gov/Documents/RecoveryPlans/YumaClapperRail.pdf.

54. Hinojosa-Huerta, *supra* note 37. These species are also listed in Mexico. *See* Norma Oficial Mexicana, *supra* note 38.

threatened by the loss and destruction of wetlands, whether by urbanization, channelization, or other river management activities.

Operation of the YDP threatens nearly all species of wetland-dependent wildlife in the Ciénega.

The Ciénega supports hunting, fishing, and ecotourism opportunities for local communities. Residents of the nearby community operate birding tours by canoe on the Ciénega. For example, the following passage describes Juan Butron's experiences with the Ciénega:

> One of the residents of the nearby ejido, Juan Butron, was born in the Lower Delta, and moved to the area when much of it was still dry. He has come to know the Ciénega very well, and is among those who give tours of the Ciénega's channels. When he first moved to the ejido a few years before, there was no water there. Describing the ejido, he says, "There were a few cattails, plus some salicornia. Mostly, it was mud." He says that they used to farm the land around the current dock that reaches into the Ciénega. When asked if anyone—either from the United States or from Mexico—consulted him or his ejido about dumping wastewater here in the Delta, Juan just laughed and said "No." He says they knew the Americans were building something in the Delta, a long canal. But they had no idea what it was being built for. "We thought it would go all the way to the Gulf. We didn't know the water was coming to us at all. Just all of a sudden, they gave us a bath."[55]

Full-capacity operation of the YDP would destroy the Ciénega. The YDP would process 96,770 acre-feet of Wellton-Mohawk drain water (2900 ppm), producing 68,500 acre-feet of YDP product water (300 ppm) and 28,000 acre-feet of highly saline reject water (9400 ppm). Return flow to the Colorado River is estimated to be 78,600 acre-feet of blended water at 480 ppm (68,500 acre-feet of YDP product water mixed with 4500 acre-feet of Wellton-Mohawk drain water). Any leftover water, about 34,730 acre-feet at 8200 ppm (28,000 acre-feet reject water plus 6730 acre-feet of raw feed) would be disposed into the canal to flow into the Ciénega.[56]

The desalting operation would thus drastically cut water deliveries to the Ciénega (by almost 70%), while driving salinity levels in the remaining effluent almost three times higher than the levels in the drain water that currently reaches the Ciénega. This concentration is also expected to drastically increase selenium loading in the waste stream, creating the risk of additional environmental and public health consequences in Mexico. This combination of increased salinity

---

55. BERGMAN, *supra* note 9, at 51.

56. *See* Yuma Area Office: Pretreatment Process, http://www.usbr.gov/lc/yuma/facilities/ydp/yao_ydp_operations_pretreatment.html (last visited September 6, 2006) (predicating these figures on a YDP intake of 108,000 acre-feet per year).

and decreased flows would have irreparable and devastating effects on the Ciénega, starving the marshlands of their water as salinity increases beyond the salt tolerance of the dominant vegetation. As a result of a temporary interruption in water flow due to flood damage and subsequent repairs to the bypass canal in 1993, the Ciénega dramatically lost between 60% and 70% of its wetland habitat.[57]

IV. OPERATION OF THE YUMA DESALTING PLANT, AND OTHER OPTIONS

Some entities in the Colorado River Basin are strongly advocating for operation of the YDP. The Colorado River Basin Salinity Control Act ("CRBSCA") obligates the United States to replace the bypass flow, whether it is reject stream from an operating YDP, Wellton-Mohawk drainage water, or both.[58] For an interim period, the United States can replace the bypass with 132,000 acre-feet of water per year by lining the Coachella Canal.[59] As water development in the basin continues with little regard for actual water supply, the minimal supply provided by the YDP has become attractive. Arizona, with junior priority on the river, has become the most anxious.[60]

The Arizona Department of Water Resources[61] and Central Arizona Project ("CAP")[62] believe that the best way to replace most of the bypass flow is by operating the YDP, or by counting this water against the Treaty entitlement. As it advocates on its website, CAP management lobbied Congress to support operation of the YDP.[63] In response, the Conference Committee on Appropriations "direct[ed] the Bureau of Reclamation to expedite its modifications of the plant to accomplish state of the art operation."[64] However, Congress did not appropriate additional funding to Reclamation. In fact, it decreased funding from the previous fiscal year. Again in 2004, the House Committee on Appropriations recommended additional funding and urged that

57. *Effects of Water Management, supra* note 6.

58. 43 U.S.C. § 1571(c) (2000).

59. *Id.* § 1572(a).

60. *See, e.g.*, Executive Summary of Critical Issues: Topic—Operation of Yuma Desalting Plant, *available at* http://www.cap-az.com/breifings/operation.pdf (last visited Feb. 13, 2006) ("The United States must meet, *but not exceed*, its obligation under the 1944 Treaty with Mexico. About 100,000 acre-feet (af) of Wellton-Mohawk drainage water is being delivered to Mexico each year, but not counted against the U.S. Treaty obligation. That over-delivery harms Arizona water users. To eliminate the over-delivery, the Wellton-Mohawk drain water must either be *treated* and delivered to Mexico under the Treaty or *counted* against the Treaty obligation when delivered through the MODE. No other feasible alternative satisfies the U.S. Treaty obligation without unacceptable loss of water to the Basin States, particularly Arizona.") (emphasis in original).

61. *See* Arizona Department of Water Resources, Yuma Desalinization Plant: Arizona Perspectives (August 2002) (on file with the *Pacific McGeorge Global Business & Development Law Journal*).

62. *See* Central Arizona Project, Critical Issues, http://www.cap-az.com/colorado/index.cfm?action =cover&subSection=75 (last visited September 6, 2006).

63. Sue McClurg, *Dealing with the Colorado River's Salinity: What is the Future of the Yuma Desalting Plant?*, COLO. RIVER PROJECT: RIVER REP., at 1, 8.

64. H.R. REP. No. 108-357, at 118-119 (2003) (Conf. Rep.).

Reclamation commit sufficient funds so that the plant could achieve one-third operational capacity by the end of 2006.[65] The full Congress, however, again appropriated less Reclamation funding than the year before.[66]

In response to direction from the Secretary of the Interior and from Congress, Reclamation is studying different methods to replace the bypass that are less costly than operating the YDP.[67] Reclamation is still developing this report and options include:[68] temporary forbearance and lease agreements, use of non-system groundwater,[69] increased water use efficiency,[70] and water banking.[71]

Reclamation's most promising option is a proposal to lease water from willing sellers, with an estimated cost of $60 to $250 per acre-foot.[72] Reclamation has suggested that by issuing a request for proposals for voluntary and temporary leases, the agency could develop a legitimate market for this water, soliciting bids from throughout the Colorado River Basin for annual or partial-year leases of water. This would ensure that only willing sellers would engage in these transactions, and because the leases would be short-term in nature, it would also minimize any impact on farming communities. Indeed, the opportunity for partial-year leasing could benefit farmers by providing a voluntary, flexible tool that would allow them to profit from water rights that might otherwise be used on low-value crops or for production at unfavorable times of the year. In response to a "Request for Proposals," several entities expressed interest in participating in such a program.[73]

---

65. H.R. REP. No. 108-554, at 69 (2004).

66. BUREAU OF RECLAMATION, BUDGET JUSTIFICATIONS : LOWER COLORADO REGION 42 (2006), *available at* http://www.usbr.gov/lc/region/g7000/budgetFY06.pdf.

67. S. REP. No. 106-58, at 80 (1999) (requesting a "report... on alternatives to meeting Treaty requirements without the Desalting Plant, and actions the Bureau of Reclamation can take to reduce the high annual operation and maintenance costs"); BUREAU OF RECLAMATION, BUDGET JUSTIFICATIONS AND ANNUAL PERFORMANCE PLAN FISCAL YEAR 2000 LOWER COLO. REGION 189 (2000) [hereinafter BUDGET JUSTIFICATIONS] (referencing Secretary's direction to identify a "long-term, low cost alternative").

68. U.S. Department of the Interior, Draft Report to the Congress: Modifications to Projects of Title I of the Colorado River Basin Salinity Control Act (February 11, 2003) [hereinafter Modifications to Projects of Title I] (on file with author).

69. Reclamation would capture non-system groundwater, perhaps from the Yuma area, that would otherwise flow south to Mexico. *Id.* at 17.

70. Reclamation would pursue system improvements such as canal lining and sprinklers and/or improved delivery systems using regulatory storage and automation. *Id.* at 18.

71. Reclamation would bank surplus Colorado River water for use later to replace the bypass. Colorado River Basin Salinity Control Overview, http://www.usbr.gov/dataweb/html/crwq.html (last visited September 6, 2006). Reclamation has requested funding for this program as early as 1999. BUDGET JUSTIFICATIONS, *supra* note 67, at 190 (requesting $3 million).

72. *See e.g.*, Letter from Robert W. Johnson, Regional Director, Bureau of Reclamation, to Colorado River water entitlement holders, May 18, 2004 (requesting proposals to temporarily forbear water entitlements in return for compensation). Compare this to Reclamation's most recent estimated annual operating costs, at full capacity, at $26.1 million to $33.9 million per year, or $305 to $480/acre-foot of water. See Modifications to Projects of Title I, *supra* note 68, at 15-16.

73. Harold Maxwell, *Battle over Colorado River waters comes to Yuma*, YUMA SUN, Aug. 10, 2004.

An alternative that avoids operation of the YDP, such as water leasing or water banking, would save tens of millions of dollars annually and avoid critical environmental harm to the Ciénega.[74] Conservation of aquatic and wetland habitat such as the Ciénega is crucial to protecting the species and ecosystems found there.[75] If operation of the YDP takes place, loss of the Wellton Mohawk Irrigation and Drainage District's agricultural drainage would have devastating effects on the Ciénega by starving the marshlands of their water with salinity increase beyond the salt tolerance of the dominant vegetation. The effects of the deprivation of water on the Ciénega have been well documented in scientific literature. In one example, after just a temporary interruption in flows, the Ciénega rapidly lost between 60% and 70% of its "above-ground emergent" vegetated habitat.[76]

During this same interruption in flows, researchers discovered that desert pupfish disappeared from several locations in the Ciénega.[77] They found that the desert pupfish was absent from two of three locations where it previously had been found. One of those locations was the end of the MODE canal, where the pupfish previously had been most abundant. It was still present in one area, but the researchers found it unlikely that this shallow overflow area would remain wetted with a permanent reduction of inflow.

In addition to the loss of water, scientists are modeling the effects of both the drastic increase in salinity and decrease in water. One model, prepared for Reclamation, predicts that YDP operation at just one-third capacity would reduce the amount of vegetation at the Ciénega by almost half, due to an increase in salinity in both the inflow and inflow reduction.[78] Another study predicts that YDP operation at full capacity would reduce flow to the Ciénega by 65% and increase salinity to between 7000 and 10,000 ppm, flow that would exceed the salt tolerance of most of the marsh vegetation and result in its deterioration.[79] As the loss of water inflow resulted in the loss of desert pupfish habitat and thus desert pupfish, it is more than likely that the loss of the Ciénega's marsh habitat would adversely impact Yuma clapper rail and other birds.

---

74. For other perspectives on replacing the bypass flow, see Jennifer Pitt et al., *New Water for the Colorado River: Economic and Environmental Considerations for Replacing the Bypass Flow*, 6 U. DENV. WATER L. REV. 68 (2002).

75. *See generally Endangered Wetland, supra* note 8; Edward P. Glenn et al., *Ecology and Conservation of the Colorado River Delta, Mexico*, 49 J. ARID ENV'TS 5 (2001).

76. *See* Scott A. Zengel et al., *Ciénega de Santa Clara, A Remnant Wetland in the Rio Colorado Delta (Mexico): Vegetation Distribution and the Effects of Water Flow Reduction*, 4 ECOLOGICAL ENGINEERING 19 (1995) [hereinafter *Effects of Water Flow Reduction*].

77. *See* Scott A. Zengel & Edward. P. Glenn, *Presence of the Endangered Desert Pupfish, (Cyprinodon Macularius, Cyprinidontidae) in Ciénega de Santa Clara, Mexico, Following an Extensive Marsh Dry-Down*, 41 S.W. NATURALIST 73, 75 (1996). Shortly after floods had caused the YDP to cease operations, there was an eight-month shutdown of flow due to canal repairs.

78. *Status of Wetlands, supra* note 30, at 41.

79. *See* Edward P. Glenn et al., *Effects of Salinity on Growth and Evapotranspiration of Typha-domingensis Pers*, 52 AQUATIC BOTANY 75 (1995); *see also Effects of Water Flow Reduction, supra* note 76.

United States and Mexican researchers are currently developing a model that predicts how wetland hydrology, vegetation, and water quality change as a function of inflow and salinity. The model can be used to "assess the impacts to wetland wildlife and overall ecosystem health" and management scenarios for the Ciénega.[80] Preliminary results indicate that operation at full capacity will destroy the Ciénega. With an average flow of approximately 46,020 acre-feet per year at 9500 ppm, the vegetation will disappear within three years.[81]

V. PROTECTION FOR THE CIÉNEGA FROM U.S. ENVIRONMENTAL LAW

Although Congress has urged re-operation of the YDP, it has not abandoned the search for alternatives or ignored the environmental benefits of the Ciénega. The House Committee directed Reclamation to submit a report, together with the International Boundary and Water Commission ("IBWC"), which would "identify *alternatives* for operation of the Yuma Desalting Plant recognizing the need to maintain the *unique ecology* of the Ciénega."[82] This pursuit of alternatives will aid Reclamation in complying with environmental laws such as the National Environmental Policy Act ("NEPA"), the Endangered Species Act ("ESA"), the Migratory Bird Treaty Act ("MBTA"), and the Clean Water Act ("CWA").

A. National Environmental Policy Act

The NEPA is "our basic national charter for protection of the environment."[83] Its purpose is to "promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man,"[84] and to "help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment."[85]

Section 102 of NEPA contains action-forcing provisions that are aimed at fulfilling NEPA's intent, which require all federal agencies to prepare an environmental impact statement ("EIS") for "major federal actions significantly affecting the quality of the human environment" that includes the following: the

---

80. Kate H. Huckelbridge et al., *Modeling the Ciénega de Santa Clara, Sonora, Mexico*, Eos. Trans. AGU, 83(47), Fall. Meet. Suppl., Abstract H21A-0784, 2002 (on file with author).

81. Kate Huckelbridge et al., AN INTEGRATED MODEL FOR EVALUATING THE HYDROLOGY, HYDRODYNAMICS, WATER QUALITY AND ECOLOGY OF A WETLAND IN THE COLORADO RIVER DELTA, *available at* http://aeesociety.org (follow "Annual Meeting" hyperlink; then follow "2004 Annual Meeting (Proceedings)" hyperlink; then follow the "Poster" hyperlink under Item No. 2G).

82. H.R. REP. No. 108-212, at 100 (2003) (emphasis added).

83. 40 C.F.R. § 1500.1(a) (2005).

84. 42 U.S.C. § 4321 (2005).

85. 40 C.F.R. § 1500.1(c).

environmental impact of the proposed action, any adverse environmental effects that cannot be avoided, and alternatives to the proposed action.[86]

Even though Reclamation prepared a final EIS in 1975, NEPA regulations require supplementation if "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[87] Factors to be considered include the environmental significance of the new information, the degree of care with which the agency considered the information and its impact, and the degree to which the agency supported its decision with a statement of explanation or additional data.[88]

Significance is measured by the context and intensity of the action, and includes consideration of the degree to which the action affects unique wetlands, ecologically-critical areas, or threatened or endangered species, and whether the action violates federal law.[89] Each of these factors is present here. Degradation or destruction of an internationally-recognized wetland that harbors listed species is a significant impact. In addition, Reclamation must account for a new interpretation of its obligations under the MBTA.[90] With a power demand of 170 million kilowatt-hours, operation of the YDP would have significant air-quality and climate-change impacts.

The fact that some of the environmental impacts will be felt in Mexico is of little consequence to the NEPA. Reclamation must consider even those effects because the Council on Environmental Quality ("CEQ") has directed all federal agencies to apply the NEPA to federal agency actions with transboundary effects.[91] In fact, Reclamation's past practice affirms the application of NEPA to transboundary impacts, as the agency considered environmental impacts on the YDP in Mexico,[92] promulgation of its Interim Surplus Criteria,[93] and its Inadvertent Overrun and Payback Policy.[94]

---

86. 42 U.S.C. § 4332(2)(C) (2005).

87. 40 C.F.R. § 1502.9(c)(1)(ii). Reclamation's own NEPA guidelines call for supplementation after five years. BUREAU OF RECLAMATION, NATIONAL ENVIRONMENTAL POLICY ACT HANDBOOK 7-19 (1989). *See also* Sierra Club v. Slater, 120 F.3d 623, 632 (9th Cir. 1997).

88. *See* Marsh v. Or. Natural Res. Council, 490 U.S. 360, 373 (1989) (citing Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1024 (9th Cir. 1980)).

89. 40 C.F.R. § 1508.27 (2005).

90. *See id.* § (b)(9); *see also* Portland Audubon Soc'y v. Babbitt, 998 F.2d 705 (9th Cir. 1993) (holding that agency disregard of new scientific information that would affect an endangered species requires a supplemental EIS).

91. Council on Environmental Quality, Memorandum to Heads of Agencies on the Application of the National Environmental Policy Act to Proposed Federal Actions in the United States with Transboundary Effects (July 1, 1997), *available at* www.usda.gov/rus/water/ees/pdf/coeqg.pdf.

92. *See supra* notes 27-29 and accompanying text.

93. BUREAU OF RECLAMATION, FINAL ENVIRONMENTAL IMPACT STATEMENT COLORADO RIVER INTERIM SURPLUS CRITERIA, at vol. I, Ch. 3.16-1 (2000), *available at* http://www.usbr.gov/lc/region/g4000/surplus/SURPLUS_FEIS.HTML (last visited September 8, 2006) [hereinafter FINAL INTERIM SURPLUS CRITERIA].

94. BUREAU OF RECLAMATION, IMPLEMENTATION AGREEMENT, INADVERTENT OVERRUN AND PAYBACK POLICY, AND RELATED FEDERAL ACTIONS FINAL ENVIRONMENTAL IMPACT STATEMENT 3.12-1

Since a supplemental EIS will resemble the original EIS, Reclamation will have to examine alternatives to the proposed action—in this case, operating the YDP. Alternatives are at the heart of the EIS.[95] CEQ regulations call on federal agencies to "[r]igorously explore and objectively evaluate all reasonable alternatives . . . , [d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits . . . , [i]nclude the alternative of no action . . . , [and] [i]nclude appropriate mitigation measures not already included in the proposed action or alternatives."[96] Reclamation's work in response to congressional and secretarial direction to reduce costs and find alternatives to YDP operation will inform the alternatives.

This direction should also inform the selection of the preferred alternative. NEPA requires consideration of not only environmental consequences, but also economic and energy impacts.[97] Congress also specifically requested a "report . . . on alternatives to meeting Treaty requirements without the Desalting Plant, and actions the Bureau of Reclamation can take to *reduce* the high annual operation and maintenance costs."[98] Even before then, the Secretary was directing Reclamation to work with the basin states and the IBWC to determine a "long-term, *low-cost* alternative to operating the plant."[99] It is clear that Reclamation has many means by which to meet the salinity differential in Minute 242.

B. Endangered Species Act

Unlike NEPA, the ESA has both procedural and substantive provisions. Congress passed the ESA in order to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such species."[100] ESA's requirements serve to carry out the conservation and recovery goals of the Act, including the development of recovery plans,[101] the duty to conserve listed species,[102] the duty to avoid jeopardizing listed species via consultation with the

---

(2002), *available at* http://www.usbr.gov/lc/region/g4000/FEIS/Volume%20I.pdf. In fact, Reclamation has succinctly recognized that "[t]he body of NEPA law directs federal agencies to analyze the reasonably foreseeable consequences of a project or action, regardless of where impacts might occur." *Id.* at 3.16-1.

95. 40 C.F.R. § 1502.14 (2005).

96. *Id.*

97. *Id.* §§ 1508.14, 1502.16(e).

98. S. REP. No. 106-58, at 80 (1999) (emphasis added). *See also* 43 U.S.C. § 1574 (2005) (authorizing the Secretary to modify the salinity control project if it still meets objectives, at the "lowest overall cost" to the U.S.).

99. BUDGET JUSTIFICATIONS, *supra* note 67, at 189.

100. 16 U.S.C. § 1531(b) (2005).

101. *Id.* § 1533(f).

102. *Id.* § 1536(a)(1).

Fish and Wildlife Service ("FWS") or National Marine Fisheries Service,[103] and the prohibition on taking listed species.[104]

Should Reclamation choose to operate the YDP, the agency must consult with the FWS because its action is likely to adversely affect listed species.[105] As shown above and confirmed by Reclamation, operation of the YDP will without a doubt destroy habitat used by large populations of Yuma clapper rail and desert pupfish and smaller populations of additional protected wildlife.[106] The fact that the listed species reside in Mexico is irrelevant. Further, the fact that the CRBSCA authorizes operation of the YDP is also irrelevant to the scope of the consultation.

First, where an agency action in the United States affects wildlife in another country, provisions of the ESA apply. The ESA's implementing regulations require that the request to initiate consultation describe the action area—"all areas to be affected directly or indirectly by the federal action and not merely in the immediate area involved in the action."[107] Neither this nor other definitions (i.e., "cumulative effects" and "effects of the action") contain geographic limitations.[108] Clearly, the Ciénega would be within the area affected by Reclamation's action, and therefore Reclamation must avoid jeopardizing or taking listed species in the delta.[109]

Second, Reclamation has ample authority to modify the proposed action or to find another way to meet Minute 242. According to FWS regulations, the ESA "appl[ies] to all actions in which there is discretionary federal involvement or control."[110] In *Strahan v. Linnon,* the court specifically held that "[i]f the federal

---

103. *Id.* § (a)(2)

104. *Id.* § 1538.

105. *See* Defenders of Wildlife v. Lujan, 911 F.2d 117 (8th Cir. 1990) (holding that ESA consultation requirements apply to all agency actions affecting listed species, whether within the United States or abroad), *rev'd on other grounds*, 504 U.S. 555 (1992).

106. *See* BUREAU OF RECLAMATION, LOWER COLORADO RIVER MULTI-SPECIES CONSERVATION PROGRAM FINAL App. I-4 (2004) (concluding that elimination of wetlands in Ciénega would have drastic impacts on the Yuma clapper rail population).

107. 50 C.F.R. § 402.02 (2005).

108. *Id.*

109. Indeed, in response to Defenders' challenge to FWS's section 7 regulations, the federal government explained to both the Eighth Circuit Court of Appeals and the Supreme Court its position that, under the plain language of the statute, while these requirements do not apply to actions taken in other countries, they certainly *do* apply where the agency action occurs in *this* country, but the effects are to a foreign species. *See* Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992); *see also* Federal Government's Brief to the Eighth Circuit at 13, n.6, (1988) ("[b]ecause Section 4 specifically requires listing of foreign species, Section 7 *will apply when an agency's funding or support of an action in the United States . . . may affect a foreign species.*") (emphasis added); Brief of Petitioner at 36 n.23, Lujan v. Defenders of Wildlife, 504 U.S. 555 (1991) (No. 90-1424) (explaining that "Section 7(a)(2) might well apply if an action in the United States or on the high seas *would be likely to jeopardize the continued existence of an endangered or threatened species in a foreign country*") (emphasis added).

110. 50 C.F.R. § 402.03 (2005). *See* Derek Weller, *Limiting the Scope of the Endangered Species Act: Discretionary Federal Involvement or Control Under Section 402.03*, 5 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 309 (1999) (discussing the application and legality of section 402.03).

agency has no discretion to modify the activity at issue to accommodate the mandate of the ESA, then the consultation would be pointless."[111] Nondiscretionary activities are those where the "agency simply does not possess the ability to implement measures that inure to the benefit of the protected species."[112] On the other hand, when an agency has the discretion to carry out the purposes of the acts or other mandates it enforces, 50 C.F.R. § 402.03 does not exempt the action from the ESA.[113]

Reclamation is not required to operate the YDP in order to comply with the 1944 Treaty. Neither Minute 242 nor its enabling legislation mandates *how* the United States must meet the salinity standards. In addition, there is an abundance of statutory language and supporting documents that reflect Reclamation's ability to meet its obligations by means other than operating the YDP.

The CRBSCA authorized the Secretary of the Interior to "proceed with a program of works of improvement for the enhancement and protection of the quality of water available in the Colorado River . . . to enable the United States to comply with its obligations under . . . [Minute 242]."[114] The CRBSCA also permitted the construction, operation, and maintenance of the YDP, as well as the "necessary extension in the United States and Mexico of the existing bypass drain to carry the reject stream . . . and other drainage waters to the Santa Clara Slough in Mexico."[115] Nowhere within the CRBSCA did Congress use the term "shall" in association with the YDP. Accordingly, the CRBSCA did not command the Secretary to exclusively utilize a desalting plant to meet U.S. obligations, but merely authorized the action.

More importantly, the CRBSCA authorized the Secretary to provide for modifications of the projects authorized by the CRBSCA "to the extent he determines appropriate for purposes of meeting the international settlement objective of this title at the lowest overall cost to the United States."[116] Thus, Congress gave the Secretary discretion to modify the projects authorized by the CRBSCA if modification lowers the overall cost to the United States. Additionally, Congress gave the Secretary power to "provide measures determined by the Secretary of the Interior to be appropriate to mitigate loss of fish and wildlife habitat associated with other measures taken under this title."[117] Lastly, the CRBSCA also authorizes the Secretary to enter into contracts "that he deems necessary to carry out the provisions of this title in advance of the appropriations of funds there for."[118]

---

111. 967 F.Supp. 581, 607 (D.Mass. 1997).
112. Sierra Club v. Babbitt, 65 F.3d 1502, 1509 (9th Cir. 1995).
113. Florida Key Deer v. Stickney, 864 F.Supp. 1222, 1240 (S.D. Fla. 1994).
114. 43 U.S.C. § 1571(a) (2005).
115. *Id.* § 1571(b).
116. *Id.* § 1574.
117. *Id.* § 1579.
118. *Id.* § 1575.

All of this statutory language proves that Congress provided Reclamation with discretion to determine what is necessary and appropriate to fulfill the United States' responsibilities.[119] By providing the Secretary with the power to modify a project, as well as the authority to mitigate the loss of fish and wildlife and the power to contract as necessary to carry out the Act, Congress provided the agency with discretion to modify an activity and to accommodate the mandate of the ESA.[120]

C. *Migratory Bird Treaty Act*

Because the delta, and especially the Ciénega, play a major role in the Pacific Flyway, concerns have been raised about the Migratory Bird Treaty.[121] Congress passed enabling legislation in the MBTA.[122] The FWS, the entity charged with enforcing the MBTA, has interpreted the Act to prohibit direct taking;[123] however, indirect taking in the form of habitat loss, use of pesticides, and the introduction of non-native species and disease has resulted in the continued decline in many migratory bird populations.

The MBTA's implementing regulations define "take" as "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or the attempt to" engage in any of the foregoing.[124] In interpreting this definition, courts have held that this language is broad enough to encompass such actions as poisoning,[125] but not so expansive as to include habitat destruction.[126] Additionally, courts have held that the

---

119. *See* Turtle Island v. Nat'l Marine Fisheries Serv., 340 F.3d 969, 975 (9th Cir. 2003) (holding that National Marine Fisheries Service's issuance of fishing permits pursuant to a federal law governing high seas fishing constituted a discretionary agency action where the plain language of the federal law governing the permitting process required National Marine Fisheries Service to issue permits in a manner that would increase the "effectiveness of international conservation and management measures").

120. Congress has repeatedly reaffirmed this discretion. *See, e.g.*, H.R. Rep. No. 108-212, at 100 (2003) (directing Reclamation to submit a report, together with the IBWC, that would "identify *alternatives* for operation of the Yuma Desalting Plant recognizing the need to maintain the unique ecology of the Ciénega") (emphasis added); S. REP. No. 106-58, at 80 (1999) (requesting a "report . . . on *alternatives* to meeting Treaty requirements *without the Desalting Plant*, and actions the Bureau of Reclamation can take to *reduce* the high annual operation and maintenance costs") (emphasis added); *see* BUDGET JUSTIFICATIONS, *supra* note 67, at 189 (indicating that the Secretary had directed Reclamation to work with the basin states and the IBWC to determine a "long-term, low-cost *alternative* to operating the plant") (emphasis added).

121. Convention between the United States and Great Britain for the Protection of Migratory, U.S.-U.K., August 16, 1916, 39 Stat. 1702. Later treaties include the Convention between the United States and Mexico for the Protection of Migratory Birds and Game Mammals, U.S.-Mex., February 7, 1936, 50 Stat. 1311.

122. 16 U.S.C. §§ 703-711. *See also* 50 C.F.R. §§ 20-21 (2005).

123. *See* 16 U.S.C. § 703; *see also* 50 C.F.R. § 10.12 (defining "take" to mean to "pursue, hunt, shoot, wound, kill, trap, capture, or collect" or to attempt these activities); Seattle Audubon Soc'y v. Evans, 952 F.2d 297 (9th Cir. 1991) (habitat destruction does not mean "take" within the MBTA).

124. 50 C.F.R. § 10.12.

125. *See* United States v. FMC Corp., 572 F.2d 902 (2nd Cir. 1978); United States v. Corbin Farm Serv., 444 F.Supp. 510 (E.D. Cal), *aff'd*, 578 F.2d 259 (9th Cir. 1978); United States v. Rollins, 706 F.Supp. 742 (D. Id. 1989).

126. *See* Seattle Audubon Society v. Evans, 952 F.2d 297 (9th Cir. 1991); City of Sausalito v. O'Neill,

relevant inquiry in such a case is not whether the defendants *intended* to kill birds, but rather if they acted with "reasonable care under the circumstances."[127] In fact, in comparing the poisoning of birds with a bird colliding with an automobile, one court stated that the "driver is not reasonably in a position to prevent the bird's death whereas a person applying pesticide might be able to foresee the danger and prevent it."[128]

Accordingly, the operation of the YDP would result in a "take" under the MBTA. Such operation would lead to drastic reductions in water deliveries to the Ciénega, as well as an increase in salinity levels to almost three times higher than the levels currently flowing to the area. This concentration is also expected to drastically increase selenium loading in the waste stream, creating the risk of additional environmental consequences. These changes will result in the deaths of many migratory bird populations. Based on the logic of the "poisoning" cases, this arguably could be considered "poisoning." Furthermore, in operating the plant, Reclamation is performing an affirmative act that the agency knows will have dire effects on the populations of migratory birds. It is undeniable that Reclamation is in a position to foresee the dangers of operating the plant on migratory birds and to possess full authority to prevent these dangers.

Similarly, although courts have held that habitat destruction and/or modification are not within the scope of a "take" under the MBTA, it is arguable that the "poisoning" cases could be considered habitat destruction and/or modification as well. A review of the "poisoning" cases reveals that the contaminants were released within the habitats relied upon by migratory birds, including fields and water sources, and resulted in the death of many birds. Therefore, these actions could be considered to have "modified" or "destroyed" habitat, thereby potentially opening the door to the argument that the MBTA does, in fact, contemplate habitat destruction and/or modification within the definition of a "take."

The FWS, along with some courts, has interpreted the MBTA as inapplicable to the federal government, further weakening the Act.[129] A federal appellate court recently held that federal agencies are subject to the MBTA's "take" prohibitions.[130] Because the prohibitions of the MBTA apply to federal agencies, private parties can now seek to enjoin federal actions that take migratory birds, unless such taking is authorized pursuant to MBTA regulations.[131] The fact that

---

386 F.3d 1186 (9th Cir. 2003); Mahler v. United States Forest Service, 927 F. Supp. 1559 (Ind. Dist. Ct. 1996).

127. *See Corbin Farm Serv.*, 444 F.Supp. at 536; *see also* United States v. Moon Lake Elec. Ass'n. Inc., 45 F.Supp. 2d 1070 (Colo. Dist. Ct. 1999) ("Simply stated. . .it is not necessary to prove that a defendant violated the Migratory Bird Treaty Act with specific intent or guilty knowledge.").

128. *Corbin Farm Serv.*, 444 F.Supp. at 535.

129. *See* Migratory Bird Permits; Take of Migratory Birds by Department of Defense, 69 Fed. Reg. 31,074, 31,075 (June 2, 2004) (citing Newton County Wildlife Ass'n v. U.S. Forest Serv., 113 F.3d 110, 115 (8th Cir. 1997) (holding that sanctions apply to persons, and the United States is not construed to be a person, unless explicitly made so)); *see also* Sierra Club v. Martin, 110 F.3d 1551, 1555 (11th Cir. 1997).

130. Humane Soc'y v. Glickman, 217 F.3d 882 (D.C. Cir. 2000).

131. Ctr. for Biological Diversity v. Pirie, 191 F.Supp.2d 161 (D.D.C. 2002) (ruling that Navy activities

federal agencies are subject to the permit requirements of the FWS's existing regulations is now reflected in the FWS Manual.[132]

Even before these court cases changed the prevailing interpretation, President Clinton signed an executive order that directed federal agencies to take certain actions to implement the MBTA.[133] Each federal agency was to develop a Memorandum of Understanding with the FWS to promote the conservation of migratory bird populations and minimize takings of protected birds.[134] Reclamation still has not completed its Memorandum of Understanding.

D. Clean Water Act

Lastly, Reclamation must also apply for a CWA permit for its discharge from the YDP to the Colorado River. The objective of the CWA[135] is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" and set a national goal of water quality that provides for the protection and propagation of fish, shellfish, and wildlife.[136] Generally, the EPA sets effluent limits based on what is technologically and economically feasible for hundreds of pollutants for categories of dischargers.[137] At the same time, states set water quality standards for the receiving waters.[138] Dischargers must obtain a permit that certifies the discharged pollutant satisfies both the effluent limitations and the water quality standards.[139]

The quality of the product water and blended water depends heavily on the quality of the raw feed water, Wellton-Mohawk's drain water.[140] Based on feed water with phosphates measuring 0.10 ppm and nitrates measuring 5.0 ppm, the blended water would contain 2.0 ppm phosphates and 3.0 ppm nitrates.[141] Arizona's water quality standards for phosphorus and nitrogen on the Colorado River at the Northern International Boundary near Morelos Dam, are 0.3 mg/L

---

resulting in takes without a permit were illegal and awarding a preliminary injunction to private citizen's claim brought pursuant to Administrative Procedure Act enjoining activity and ordering Navy to apply for permit).

132. Division of Migratory Bird Management, Migratory Bird Permits: Authorities, Objectives, & Responsibilities; Migratory Bird Permits, 724 F.W. 2, *available at* http://www.fws.gov/policy/724fw2.pdf.

133. Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3,853 (Jan. 17, 2001).

134. Each agency is required to complete its MOU within two years. *Id.*

135. 33 U.S.C. §§ 1251-1387 (1994).

136. *Id.* § 1251(a).

137. *Id.* § 1311.

138. *Id.* § 1313. If state law is absent or insufficient, the EPA will promulgate water quality standards. *Id.* § 1313(a)(3)(C).

139. The EPA, or a state through delegation from the EPA, may issue "a permit for the discharge of any pollutant." *Id.* § 1342(a)(1). Reclamation will apply to the Arizona Department of Environmental Quality for an NPDES permit for its discharge from the plant. ARIZ. ADMIN. CODE §§ R18-9-A901 et seq (2005).

140. The quality of the product and blended water also depends on the chemicals used during the treatment process. FINAL ENVIRONMENTAL STATEMENT, *supra* note 12.

141. *Id.* at Table 1.

and 2.5 mg/L, respectively.[142] The blended water may exceed Arizona's water quality standards.

On the Colorado River, the EPA has established salinity standards at three points in the lower basin: below Hoover Dam (723 mg/L), at Parker Dam (747 mg/L), and at Imperial Dam (879 mg/L).[143] However, there are no salinity standards below Imperial Dam, and salinity control below the Dam is Reclamation's responsibility.[144] The United States must also comply with the salinity differential from Imperial Dam to Morelos Dam, pursuant to Minute 242. In 2003, the annual average differential was 136 ppm.[145] Despite or because of an overall improvement in the quality of water reaching Mexico, that differential has become more difficult to meet, and the addition of blended water at 480 ppm TDS (total dissolved solids) below Imperial Dam may make meeting that differential even more difficult.[146]

VI. CRISIS ON THE COLORADO RIVER, PART 2?

Without a doubt, Mexico will be concerned about impacts to the Biosphere Reserve, water quality, and imperiled species. The General Law on Ecological Balance and Environmental Protection is the principle federal environmental law in Mexico, and sets forth general principles that guide ecological policies as well as instruments for implementing those policies.[147] Most environmental protection functions are the responsibility of one agency, the Secretaría de Medio Ambiente y Recursos Naturales ("SEMARNAT"), meaning the Secretariat for Environment and Natural Resources, which implements the Federal Ecology Law. The federal government implements matters under this general law by issuing regulations, which are in turn implemented by technical standards known as Official Mexican Standards.[148]

---

142. ARIZ. ADMIN. CODE § R18-11-109F. The phosphate value was above the then-proposed EPA standard of .10 ppm for Imperial to Morelos Dam, but the FES proposed no methods for complying with this standard. FINAL ENVIRONMENTAL STATEMENT, *supra* note 12 at 22.

143. COLORADO RIVER SALINITY CONTROL FORUM, 2005 REVIEW: WATER QUALITY STANDARDS FOR SALINITY COLORADO RIVER SYSTEM 3-2 (Oct. 2005), *available at* http://www.coloradoriversalinity.org/2005%20Review%20October.pdf. These criteria were established to protect infrastructure and crop production, not human health or fish and wildlife (contrast to purposes of CWA). They have not changed since 1975. *Id.* at 3-3.

144. *Id.* at 1-1.

145. BUREAU OF RECLAMATION, ANNUAL OPERATION PLAN FOR COLORADO RIVER RESERVOIRS 22-23 (2005), *available at* http://www.usbr.gov/lc/region/g4000/aop05_final.pdf .

146. Remembering that the maximum permissible differential is 145 ppm, the YDP could add between 0 and 28 ppm to the Colorado River at the Northerly International Boundary. Yuma Desalting Plant Readiness Assessment 39 (October 2002) (on file with Pacific McGeorge Global Business & Development Law Journal).

147. Ley General del Equilibrio Ecológico y la Protección al Ambiente, *available at* http://www.conanp.gob.mx/anp/legal/LGEEPA.pdf. *See generally* ENVIRONMENTAL LAW INSTITUTE, DECENTRALIZATION OF ENVIRONMENTAL PROTECTION IN MEXICO: AN OVERVIEW OF STATE AND LOCAL INSTITUTIONS 5-30 (1996) [hereinafter DECENTRALIZATION OF ENVIRONMENTAL PROTECTION IN MEXICO], *available at* http://www.eli.org/pdf/resreportdecen.pdf.

148. DECENTRALIZATION OF ENVIRONMENTAL PROTECTION IN MEXICO, *supra* note 147, at 6.

Mexico recently adopted a comprehensive new federal wildlife law, the Ley General de Vida Silvestre ("LGVS").[149] Title VI of the LGVS directed SEMARNAT to review the existing list of protected species and develop a new list in consultation with a National Technical Consultative Council established elsewhere in the law, and authorizes any person to propose additions, removals, or changes to that list.[150] LGVS sets forth three categories of "species and populations at risk": endangered (E); threatened (T); and specially protected (SP).[151] Norma Oficial Mexicana ("NOM") 059-2001 lists over 2000 species, including several in the Ciénega such as the Yuma clapper rail (T), the California black rail (E), the Virginia rail (SP), and the desert pupfish (E).[152]

The Comisión Nacional del Agua ("CNA"), Mexico's National Waters Commission, is an agency within SEMARNAT that has jurisdiction over water quality, water resources, and planning. It administers Mexico's system of water rights and pumping permits.[153] The CNA administers the National Waters Law. Title VII, dealing with the prevention and control of water pollution, is directly relevant.[154] Individuals and corporations are required to obtain a CNA permit to discharge wastewater to national waters of Mexico. With few exceptions, all waters are considered by the Mexican Constitution as national waters to be managed by CNA.[155]

Levels of pollutants entering the Ciénega, such as pesticides and herbicides, would depend on the quality of water draining from Wellton-Mohawk. At full YDP operation, the Ciénega could receive a reject stream of 8200 ppm, and nitrate and phosphate loads of 13 ppm each.[156] In recent years, selenium loading has become a focus of concern and research in the Ciénega. Current research indicates that 30% of samples in the Ciénega exceeded the selenium toxicity threshold where selenium can cause adverse biological effects in 10% of fish and birds.[157] The same research discovered that those fish found at the MODE terminus had large selenium concentrations—among the highest in the delta.[158]

---

149. Ley General de Vida Silvestre, D.O. 7 de marzo de 2000, *available at* http://www.semarnat.gob.mx/vs/LGVS_26-01-2006.pdf.

150. *Id.* at arts. 56-57.

151. *Id.* at art. 58.

152. Other listed species include Reddish Egret (SP), Brant (T), Bald Eagle (E), Peregrine Falcon (SP), Snowy Plover (T), Elegant Tern (SP), and Least Tern (SP). *See* Norma Oficial Mexicana, *supra* note 38.

153. DECENTRALIZATION OF ENVIRONMENTAL PROTECTION IN MEXICO, *supra* note 147, at 18.

154. Ley de Aguas Nacionales, D.F., 1 de diciembre de 1992, *available at* http://www.semarnat.gob.mx/marco_juridico/federal/aguas-nacionales.shtml (last visited Nov. 19, 2005). Norma Oficial Mexicana, Que establece los límites máximos permisibles de contaminantes en las descargas de aguas residuales en aguas y bienes nacionales (That establishes the maximum permissible limits of contaminants in the discharges of wastewaters into national waters and resources), D.F., 6 de enero de 1997 (NOM-001-SEMARNAT-1996), *available at* http://www.semarnat.gob.mx/wps/portal/.cmd/cs/.ce/155/.s/4044/_s.155/4014 (last visited Nov. 19, 2005).

155. *See* Abdon Hernandez, *Water Law in the Republic of Mexico*, U.S.-Mex. L.J. 15, 23-24 (2003).

156. FINAL ENVIRONMENTAL STATEMENT, *supra* note 12, at 23.

157. *See generally* Jacqueline Garcia-Hernandez et al., *Bioaccumulation of Selenium (Se) in the Ciénega*

The Department of the Interior, with its land, wildlife, and water management responsibilities along the border, has cooperated with many sister agencies in Mexico. The Department of the Interior signed a Letter of Intent with SEMARNAT,[159] and later collaborated with its Mexican counterpart on a Joint Declaration to enhance cooperation in the Colorado River Delta.[160] The countries have committed to coordinate research efforts and "[s]trengthen cooperative action and mechanisms, to improve and conserve the natural and cultural resources of the Colorado River Delta, including the river and associated wetland habitats."[161]

Despite the steps taken by the Secretary, the 1944 Water Treaty has placed consultation with Mexico in the domain of the IBWC, subject to its mission and diplomatic processes.[162] The IBWC, known as the Comisión Internacional de Límites y Aguas in Mexico, is a binational institution with authority over surface waters in the border region and is responsible for carrying out the Water Treaty of 1944. Their scope of work includes boundary maintenance, reclamation projects, allocation of water resources, construction of sanitation works, and resolution of treaty and water quality disputes.[163]

Until recently, the IBWC focused on issues of water supply and quality rather than environmental protection. A look at past Treaty minutes and technical reports demonstrates the emphasis on construction, delivery, and water quality.[164] In 1997, the IBWC established a work group covering studies of the Colorado River Delta.[165] More technical than policy oriented, the objective of the Fourth

---

de Santa Clara Wetland, Sonora, Mexico, 46 ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY 298 (2000) (providing that selenium concentrations at drain are 2.5 times greater than those at Imperial Dam and are greater than EPA criterion for wildlife protection and levels in fish were greater than background concentrations); Jacqueline Garcia-Hernandez et al., *Selenium, Selected Inorganic Elements, and Organochlorine Pesticides in Bottom Material and Biota From the Colorado River Delta,* 49 J. ARID ENVIRONMENTS 65 (2001) [hereinafter *Selenium*].

158. Garcia-Hernandez, *Selenium, supra* note 157, at 84.

159. In 1997, Secretary Babbitt and Secretary Carabias signed a joint "Letter of Intent" announcing plans to expand existing cooperative activities in the conservation of contiguous natural protected areas, . . . to harmonize activities directed at the conservation of biological diversity, . . . beginning with pilot projects . . . in Mexico, the Biosphere Reserves of the Alto Golfo de California y Delta del Rio Colorado . . . [including] harmonization and coordination of policies leading to the conservation of natural and cultural resources. Letter of Intent between the Department of Interior ("DOI") of the United States and the Secretariat of Environment, Natural Resources and Fisheries (SEMARNAP) of the United Mexican States for Joint Work in Natural Protected Areas on the United States-Mexico Border (May 5, 1997) (on file with author).

160. Bruce Babbitt & Julia Carabias, Joint Declaration between DOI and SEMARNAP to enhance cooperation in the Colorado River Delta (May 18, 2000) (unpublished document, on file with author).

161. *Id.*

162. Water Treaty of 1944, *supra* note 7, art. 2.

163. Charles J. Meyers & Richard L. Noble, *The Colorado River: The Treaty with Mexico*, 19 STAN. L. REV. 367, 387-388 (1967).

164. *See generally* Stephen P. Mumme, *Reinventing the International Boundary and Water Commission,* 9 BORDERLINES 6 (2001), *available at* http://americas.irc-online.org/briefs/2001/b179.html (last visited July 21, 2006).

165. INTERNATIONAL BOUNDARY AND WATER COMMISSION, IBWC-34-97, MEETING OF THE

Work Group is to "perform a joint baseline study of the water and natural resource conditions in the Ciénega de Santa Clara and the adjoining lowermost part of the delta of the Colorado River to guide the participating agencies in making recommendations."[166] The Work Group has been given many proposals, but has yet to make any progress.[167]

Recently though, the United States and Mexico signed a "conceptual" minute to the 1944 Treaty—an agreement on a framework for cooperation on studies and recommendations regarding the riparian and estuarine ecology of the delta.[168] Minute 306 recognizes the growing binational collaboration among government authorities and scientific, academic, and nongovernmental organizations interested in preserving the delta and upper gulf. The minute will establish a framework for cooperation between the United States and Mexico, including examining possible approaches to ensure use of water for ecological purposes, an international forum for public participation and exchange of information, and will develop joint studies and recommendations.[169]

Minute 242 also provides a dispute resolution mechanism. "With the objective of avoiding future problems, the United States and Mexico shall consult with each other prior to undertaking any new development of either the surface or the groundwater resources, or undertaking substantial modifications of present developments, in its own territory in the border area that might adversely affect the other country."[170] If Reclamation decides to stop the bypass water from flowing to the Ciénega and redirects the water to the YDP, this would be considered "a new development of either the surface or the groundwater resources" that would affect Mexico's Biosphere Reserve.

Reclamation has in the past prepared EIS's on its actions and conducted consultations with the Mexican section of IBWC based on those NEPA studies.[171] Pursuant to executive order[172] and CEQ guidance, the United States consulted with Mexico regarding possible environmental effects, including meetings

---

COMMISSION TO FORM A FOURTH COLORADO RIVER MATTERS TASK FORCE REGARDING THE COLORADO RIVER DATA MEXICALI, BAJA CALIFORNIA (1997) (on file with author).

166. LOWER COLORADO RIVER DELTA TASK FORCE, TERMS OF REFERENCE (October 28, 1997) (on file with author).

167. The work group has recently coordinated and approved proposals to develop an ecological-scientific studies database, a water flow inundation model, and a pilot restoration project. INTERNATIONAL BOUNDARY AND WATER COMMISSION, ANNUAL REPORT 7 (2000) (on file with author).

168. International Boundary And Water Commission, Minute 306: Conceptual Framework For United States-Mexico Studies For Future Recommendations Concerning The Riparian And Estuarine Ecology Of The Limitrophe Section Of The Colorado River And Its Associated Delta (Dec. 12, 2000), *available at* http://www.ibwc.state.gov/Files/Minutes/Min306.pdf. *See also* Ken Ellingwood & Tony Perry, *Delta a Snag in Babbitt's Plan for Colorado River*, L.A. TIMES, Dec. 26, 2000, at A3.

169. Minute 306, *supra* note 168, at Resolution 3. The binational committee was finally assembled in 2003, but the group has yet to adopt formal terms of reference.

170. Minute 242, *supra* note 20, § 6.

171. Final Interim Surplus Criteria, *supra* note 93, at 5-7.

172. Independent Water Project Review, Executive Order No. 12,114, 44 Fed. Reg. 1,957 (January 4, 1979).

among Reclamation, CNA, and the U.S. and Mexican Sections of the IBWC.[173] Here, Reclamation could inform Mexico of any known environmental effects from operation of the YDP, provide Mexico the information to perform its own studies, and apply its own environmental regulations.

While the IBWC is undertaking technical discussions, it should also search for opportunities to raise the broader policy discussions that attach to the Ciénega—before reaching the crisis level that requires State Department attention.[174] It should be noted that in both situations cited above, the All American Canal lining and the promulgation of Interim Surplus Guidance, Mexico formally protested U.S. actions, and felt that those protests have fallen on deaf ears.[175] To be a good neighbor, both to the north and the south, the United States should avoid a repeat situation.

It is a well accepted tenet of international law that a source state is liable for the transboundary pollution that causes significant harm to another state.[176] The United States and Mexico incorporated this concept into the Water Treaty of 1944.[177] Mexico, the aggrieved downstream state, suffers the effect of U.S. management of the Colorado River—the loss of water to the delta and gulf—whether from the impoundment and use of as much surplus flow as possible, the interception of groundwater, or the creation, and possibly the destruction, of the Ciénega. Given past practice and State Department policy, it is unlikely that the United States will adhere to this basic principle of international environmental law (even if it simply means complying with its own domestic laws).[178]

When, however, the United States is the aggrieved downstream state, it is a firm believer in this principle. On the U.S.-Canada border, the United States has complained of mining and smelter activities taking place in Canada that will have adverse effects on the Taku and Columbia Rivers. In the former case, the EPA and Alaska have called on Canada to submit the dispute to the International Joint Commission, and in the latter, the United States seeks to apply its environmental law to an actor in Canada.[179]

---

173. Final Interim Surplus Criteria, *supra* note 93, at 3.16.

174. *See generally* Mary E. Kelly & Alberto Székely, *Modernizing the International Boundary and Water Commission, Center for Latin American Studies Policy Paper*, CLAS POLICY PAPERS (2004), *available at* http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1017&context=clas (last visited Feb. 13, 2006).

175. Sandra Dibble, *Mexican Opposition to Canal Lining Grows*, S.D. UNION-TRIBUNE, AT B-2, December 19, 2004. Semarnat Press Release, Semarnat, en desacuerdo con la decision unilateral (January 24, 2001) (on file with author).

176. U.S. v. Canada ("Trail Smelter Arbitration"), 3 R.I.A.A. 1905 (1949).

177. Water Treaty of 1944, *supra* note 7, at art. 17 ("Each Government declares its intention to operate its storage dams in such manner, consistent with the normal operations of its hydraulic systems, as to avoid, as far as feasible, material damage in the territory of the other.").

178. The State Department has adopted a problematic position regarding transboundary environmental impacts. It is "the position of the United States State Department through the United States Section of the International Boundary and Water Commission that the United States does not mitigate for impacts in a foreign country." Final Interim Surplus Criteria, *supra* note 93, at 3.17-3 (2000).

179. Eryn Gable, *EPA seeks Cross-Border Review of Proposed BC Mine*, LAND LETTER, July 22, 2004.

The latter case is an interesting one, and conflicts with the State Department's position vis-à-vis mitigation of a source country's activities (at least when the source country is this one). The EPA has issued a "Unilateral Administrative Order" to a Canadian company pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA").[180] Washington State's justifications for CERCLA enforcement highlight the contradiction. Believing that the company must "clean up its own mess," the Washington State Attorney General (now Governor) stated, "Teck Cominco can't send highly toxic pollution across the Canadian border and then insist that the border protects them from liability."[181] The United States seeks to apply U.S. law to actors and actions in Canada, claiming that the border does not shield them, yet will not apply U.S. law to actors and actions in the United States, because the effects are in another country.

VII. CONCLUSION

Getting to operation of the YDP will be neither quick nor easy. Yes, the YDP could produce clean water—very expensive clean water, but Congress has not shown a willingness to appropriate the kind of money necessary to operate the YDP, and Reclamation's budget is not likely to increase any time soon. Furthermore, as high as those costs are, they do not include external costs like mitigation for, or permanent loss of, environmental resources. It is encouraging, and wise, that the state of Arizona has set up a working group that is investigating ways to preserve the integrity of the Treaty and the Ciénega.[182]

This move is encouraging because Mexico and the United States have left other Colorado River disputes unresolved. The signing of Minute 306 accompanied the passage of interim surplus criteria in the United States, and to initiate another contentious action so soon thereafter indicates less than good faith participation in the Minute 306 process. Indeed, despite threats to cut off Colorado River flows to make up for Mexico's debt on the Rio Grande, SEMARNAT Secretary Victor Lichtinger reminded the United States that the two countries "should work together to conserve the Colorado River Delta."[183]

Wendy Stueck, *Teck facing a court battle in dispute with U.S. EPA: Border Issue Centres on B.C. Smelter's Discharge into Columbia River*, MINING REPORTER, Dec. 13, 2003, at B-2.

180. Letter from Michael Gearheard, Director, Environmental Cleanup Office to Teck Cominco Metals, Ltd. (December 11, 2003), *available at* http://yosemite.epa.gov/R10/CLEANUP.NSF/webpage/Upper+Columbia+River (on file with author). Interestingly, the EPA has not enforced the Order, and officials have speculated this is due to this very contradiction–U.S. actors wish to avoid exposure to similar actions by Canada or Mexico. *State Joins Pollution Lawsuit*, Spokesman-Review, Sept. 1, 2004, http://www.findarticles.com/p/articles/mi_qn4186/is_20040901/ai_n11702194 (last visited September 6, 2006) [hereinafter *Pollution Lawsuit*].

181. *Pollution Lawsuit*, *supra* note 180.

182. *A Half-empty glass*, ARIZONA REPUBLIC, November 7, 2004.

183. Mark Stevenson, *U.S., Mexico In dispute over water rights*, Yahoo News, May 22, 2003, *available at* http://www.waterconserve.info/articles/reader.asp?linkid=22809 (last visited Feb. 13, 2006)

It is also encouraging in the broader terms of Colorado River management. Arizona's convening of such a group may signal its recognition of flexibility in the law of the river. Arizona, as a junior priority on the river, could stand to gain from a less rigid interpretation of the treaties, compacts, statutes, and case law that guide management of the river.

The move is wise because Reclamation has to meet many regulatory processes before it may legally operate the YDP. In the course of these analyses, Reclamation will illustrate the significant adverse impacts YDP operation will have on the Ciénega and may learn that even with treatment of Wellton-Mohawk's water, the quality of YDP water prohibits its discharge into the Colorado River. The agency must also confirm its obligation to ensure that its actions do not harm endangered species and migratory birds. Its lack of a migratory bird Memorandum of Understanding with the FWS is advance notice to both agencies that Reclamation will have difficulty showing compliance with the ESA and MBTA. It will take some time to design mitigation adequate to avoid, minimize, rectify, or compensate for the impacts to the Ciénega.

What may have been a good idea thirty years ago is not necessarily a good idea today. The United States is much better served by exploring less expensive and less controversial methods to comply with Minute 242. For example, Reclamation could use the money saved to pursue more efficient uses of Colorado River water. The United States could also initiate talks with Mexico on renegotiating the terms of Minute 242 based on the improved water quality at Morelos Dam and the difficulty in meeting the differential.

VIII. EPILOGUE

After this article was written, the YDP/Ciénega working group issued a white paper with recommendations that would replace the bypass flow to the Ciénega while also preserving the Ciénega.[184] While this white paper does not represent the official positions of the participants, the white paper contains recommendations for state and federal officials in both the United States and Mexico on how to deal with the YDP. These recommendations are promising in that they fulfill three "fundamental objectives": reducing or eliminating the risk of shortage to the Lower Basin; maintaining the Ciénega's wildlife habitat; and maintaining compliance with Minute 242.[185] These solutions are both short-term and long-term, and the white paper contains an action plan for implementing these recommendations. Even though CAP's website still advocates for operation

184. BALANCING WATER NEEDS ON THE LOWER COLORADO RIVER: RECOMMENDATIONS OF THE YUMA DESALTING PLANT/CIÉNEGA DE SANTA CLARA WORKGROUP, Executive Summary (April 22, 2005), *available at* http://ag.arizona.edu/AZWATER/publications/YDP%20report%20042205.pdf.

185. *Id.* at 9-10.

of the YDP, it is encouraging that their press release for the white paper is entitled "A Solution to the YDP/Ciénega Controversy."[186]

It is the author's hope that the working group participants will advocate the paper's recommendations to federal and state policy makers and elected officials, and render this article a valuable, but academic, enterprise.

186. Central Arizona Project: Press Releases, ttp://www.cap-az.com/public/press/index.cfm?release_ID=167&action=expand (last visited Feb. 13, 2006).